

ABSTRACT

A frame structure that is ordinarily optimized for providing variable high data rates also includes the flexibility to efficiently carry lower data rate, lower latency frames using sub-framing. Superframes, each comprised of a predetermined number of frames, carry voice and data communications at one or more variable data rates. The size of a superframe is limited, such as by the delay tolerance for voice transmission, typically 20 ms. Each voice customer is allotted one or more frames or portions of frames within the superframe, called sub-frames, as is needed to deliver the lower data rate, low latency voice communication. The allocation for the voice customers is not fixed, but varies as the data rate varies over time. Any bits in a frame that are not needed to carry voice communication are assigned to carry data having compatible data rate requirements. Additionally, the sub-framing concept may be extended to include ATM cells.